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**PROVISIONAL APPLICATION FOR PATENT COVER SHEET**

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

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Additional inventors are being named on the _____ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (500 characters max)					
Optimizing Output Speed and Replenishment					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
<input checked="" type="checkbox"/> Customer Number: 23309					
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<input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.					
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Respectfully submitted,

*Matthew J. Booth*

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Date 11/04/2003

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This collection of information is required by 37 CFR 1.51. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Provisional Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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PATENT

**In th United States Patent & Trademark Office  
Provisional Patent Application under 37 CFR 1.53(c)**

Inventor(s) Oles  
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For: Optimizing Output Speed And Replenishment  
Docket No.: 65825.0131

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**Description Of The Invention**

[01] Field of the Invention

[02] The present invention relates generally to load balanced production and more specifically it relates to a methodology to optimize output speed and replenishment for improving the economics and performance characteristics for fulfillment devices.

[03] Description of the Prior Art

[04] It can be appreciated that load balanced production have been in use for years.

Typically, load balanced production are comprised of digital photography kiosks, or other products that utilize manufacturing equipment that contain non-refillable consumables.

[05] The main problem with conventional load balanced production are when deployed in a self service environment the consumables are difficult to maintain. Unlike a coke machine, where consumables can be "topped off," the systems must be maintained on a timely fashion to keep the systems operational. Changing the consumables before they are exhausted increases the operating costs of the unit. Not changing the consumables before they are exhausted means that the system will always reach a state where it is not usable by a consumer (by being out of consumables to produce the desire product). Another problem with conventional load balanced production are that if a second output device is added to the system and the second output device is used after the first output device is exhausted of consumables, which allows a maintenance visit to take place without waste of consumables, you lose the production speed advantages of having two units. Another problem with conventional load balanced production are if you alternate two or more output devices

1 to increase output production you will still have situations where consumable material  
2 must be replaced before it is exhausted, or you will have situations where the system is  
3 unusable.

4 [06] While these devices may be suitable for the particular purpose to which they  
5 address, they are not as suitable for improving the economics and performance  
6 characteristics for fulfillment devices such as photography kiosks. The main problem  
7 with conventional load balanced production are when deployed in a self service  
8 environment the consumables are difficult to maintain. Unlike a coke machine, where  
9 consumables can be "topped off," the systems must be maintained on a timely fashion  
10 to keep the systems operational. Changing the consumables before they are exhausted  
11 increases the operating costs of the unit. Not changing the consumables before they  
12 are exhausted means that the system will always reach a state where it is not usable by  
13 a consumer (by being out of consumables to produce the desire product). Another  
14 problem is that if a second output device is added to the system and the second output  
15 device is used after the first output device is exhausted of consumables, which allows a  
16 maintenance visit to take place without waste of consumables, you lose the production  
17 speed advantages of having two units. Also, another problem is if you alternate two or  
18 more output devices to increase output production you will still have situations where  
19 consumable material must be replaced before it is exhausted, or you will have  
20 situations where the system is unusable.

21 [07] In these respects, the methodology to optimize output speed and replenishment  
22 according to the present invention substantially departs from the conventional concepts  
23 and designs of the prior art, and in so doing provides an apparatus primarily developed

1 for the purpose of improving the economics and performance characteristics for  
2 fulfillment devices.

3 [08] Summary Of The Invention

4 [09] In view of the foregoing disadvantages inherent in the known types of load  
5 balanced production now present in the prior art, the present invention provides a new  
6 methodology to optimize output speed and replenishment construction wherein the  
7 same can be utilized for improving the economics and performance characteristics for  
8 fulfillment devices.

9 [10] The general purpose of the present invention, which will be described  
10 subsequently in greater detail, is to provide a new methodology to optimize output  
11 speed and replenishment that has many of the advantages of the load balanced  
12 production mentioned heretofore and many novel features that result in a new  
13 methodology to optimize output speed and replenishment which is not anticipated,  
14 rendered obvious, suggested, or even implied by any of the prior art load balanced  
15 production, either alone or in any combination thereof.

16 [11] To attain this, the present invention generally comprises a system that utilizes  
17 the individual characteristics of a given output device to optimize the time between  
18 service visits to replenish consumables and to provide increased production by utilizing  
19 both devices when possible. The strategy is to have output devices produce at a ratio to  
20 each other to maximize production capabilities when both devices have media and to  
21 ensure that a device has sufficient media to maintain system operation when one  
22 device is exhausted of media and awaiting service. Assuming two devices have the  
23 same storage capacity, a second device will produce a disproportionate amount of

1 production compared to a first device until it reaches 2 to 1 ratio of remaining  
2 consumables with a first device. The initial ratio is achieved when the amount of  
3 consumables in the first device, minus the second device equals half of the amount of  
4 consumable material available when each device is full. Once a 2 to 1 ratio has been  
5 achieved the ratio will be maintained through alternating production. When the second  
6 device is exhausted of consumables the first device will produce all fulfilled items.  
7 When the second device is maintained (refilled) it will produce output at a  
8 disproportionate amount to the first device until a 2 to 1 ratio is regained (device 2 will  
9 now have 2 times the media of device one) The ratio is regained when the amount of  
10 consumables in the second device, minus the first device equals half of the amount of  
11 consumable material available when an individual device is full. This workflow continues  
12 in an alternating fashion.

13 [12] There has thus been outlined, rather broadly, the more important features of the  
14 invention in order that the detailed description thereof may be better understood, and in  
15 order that the present contribution to the art may be better appreciated. There are  
16 additional features of the invention that will be described hereinafter.

17 [13] In this respect, before explaining at least one embodiment of the invention in  
18 detail, it is to be understood that the invention is not limited in its application to the  
19 details of construction and to the arrangements of the components set forth in the  
20 following description or illustrated in the drawings. The invention is capable of other  
21 embodiments and of being practiced and carried out in various ways. Also, it is to be  
22 understood that the phraseology and terminology employed herein are for the purpose  
23 of the description and should not be regarded as limiting.

1 [14] A primary object of the present invention is to provide a methodology to optimize  
2 output speed and replenishment that will overcome the shortcomings of the prior art  
3 devices.

4 [15] An object of the present invention is to provide a methodology to optimize output  
5 speed and replenishment for improving the economics and performance characteristics  
6 for fulfillment devices.

7 [16] Another object is to provide a methodology to optimize output speed and  
8 replenishment that that is economically serviced and allows for unattended operation.

9 [17] Another object is to provide a methodology to optimize output speed and  
10 replenishment that utilizes two or more output devices in a fashion that optimizes  
11 production capability while preserving the service advantages.

12 [18] Other objects and advantages of the present invention will become obvious to  
13 the reader and it is intended that these objects and advantages are within the scope of  
14 the present invention.

15 [19] To the accomplishment of the above and related objects, this invention may be  
16 embodied in the form illustrated in the accompanying drawings, attention being called to  
17 the fact, however, that the drawings are illustrative only, and that changes may be  
18 made in the specific construction illustrated.

19 [20] This disclosure illustrates a methodology to optimize output speed and  
20 replenishment, which comprises a system that utilizes the individual characteristics of a  
21 given output device to optimize the time between service visits to replenish  
22 consumables and to provide increased production by utilizing both devices when  
23 possible. The strategy is to have output devices produce at a ratio to each other to



1 maximize production capabilities when both devices have media and to ensure that a  
2 device has sufficient media to maintain system operation when one device is exhausted  
3 of media and awaiting service. Assuming two devices have the same storage capacity,  
4 a second device will produce a disproportionate amount of production compared to a  
5 first device until it reaches 2 to 1 ratio of remaining consumables with a first device. The  
6 initial ratio is achieved when the amount of consumables in the first device, minus the  
7 second device equals half of the amount of consumable material available when each  
8 device is full. Once a 2 to 1 ratio has been achieved the ratio will be maintained through  
9 alternating production. When the second device is exhausted of consumables the first  
10 device will produce all fulfilled items. When the second device is maintained (refilled) it  
11 will produce output at a disproportionate amount to the first device until a 2 to 1 ratio is  
12 regained (device 2 will now have 2 times the media of device one) The ratio is regained  
13 when the amount of consumables in the second device, minus the first device equals  
14 half of the amount of consumable material available when an individual device is full.  
15 This workflow continues in an alternating fashion.

16 [21] The strategy is to have output devices produce at a ratio to each other to  
17 maximize production capabilities when both devices have media and to ensure that a  
18 device has sufficient media to maintain system operation when one device is exhausted  
19 of media and awaiting service.

20 [22] Assuming two devices have the same storage capacity, a second device will  
21 produce a disproportionate amount of production compared to a first device until it  
22 reaches 2 to 1 ratio of remaining consumables with a first device. The initial ratio is

1 achieved when the of consumables in the first device, minus the second device equals  
2 half of the amount of consumable material available when each device is full.

3 [23] Once a 2 to 1 ratio has been achieved the ratio will be maintained through  
4 alternating production.

5 [24] When the second device is exhausted of consumables the first device will  
6 produce all fulfilled items.

7 [25] When the second device is maintained (refilled) it will produce output at a  
8 disproportionate amount to the first device until a 2 to 1 ratio is regained (device 2 will  
9 now have 2 times the media of device one) The ratio is regained when the amount of  
10 consumables in the second device, minus the first device equals half of the amount of  
11 consumable material available when an individual device is full.

12 [26] This workflow continues in an alternating fashion.

13 [27] As to a discussion of the manner of usage and operation of the present  
14 invention, the same should be apparent from the above description. Accordingly, no  
15 further discussion relating to the manner of usage and operation will be provided.

16 [28] With respect to the above description then, it is to be realized that the optimum  
17 dimensional relationships for the parts of the invention, to include variations in size,  
18 materials, shape, form, function and manner of operation, assembly and use, are  
19 deemed readily apparent and obvious to one skilled in the art, and all equivalent  
20 relationships to those illustrated in the drawings and described in the specification are  
21 intended to be encompassed by the present invention.

22 [29] Therefore, the foregoing is considered as illustrative only of the principles of the  
23 invention. Further, since numerous modifications and changes will readily occur to

1 those skilled in the art, it is not desired to limit the invention to the exact construction  
2 and operation shown and described, and accordingly, all suitable modifications and  
3 equivalents may be resorted to, falling within the scope of the invention.

4 [30] Abstract Of The Disclosure

5 [31] A system to optimize output speed and replenishment for improving the  
6 economics and performance characteristics for fulfillment devices. The inventive device  
7 includes a system that utilizes the individual characteristics of a given output device to  
8 optimize the time between service visits to replenish consumables and to provide  
9 increased production by utilizing both devices when possible. The strategy is to have  
10 output devices produce at a ratio to each other to maximize production capabilities  
11 when both devices have media and to ensure that a device has sufficient media to  
12 maintain system operation when one device is exhausted of media and awaiting  
13 service. Assuming two devices have the same storage capacity, a second device will  
14 produce a disproportionate amount of production compared to a first device until it  
15 reaches 2 to 1 ratio of remaining consumables with a first device. The initial ratio is  
16 achieved when the amount of consumables in the first device, minus the second device  
17 equals half of the amount of consumable material available when each device is full.  
18 Once a 2 to 1 ratio has been achieved the ratio will be maintained through alternating  
19 production. When the second device is exhausted of consumables the first device will  
20 produce all fulfilled items. When the second device is maintained (refilled) it will  
21 produce output at a disproportionate amount to the first device until a 2 to 1 ratio is  
22 regained (device 2 will now have 2 times the media of device one) The ratio is regained  
23 when the amount of consumables in the second device, minus the first device equals

- 1 half of the amount of consumable material available when an individual device is full.
- 2 This workflow continues in an alternating fashion.

**Claims**

[32] We claim the following invention:

1. The invention as described and illustrated in this disclosure.
2. A system to optimize output speed and replenishment for improving the economics and performance characteristics for fulfillment devices. The inventive device includes a system that utilizes the individual characteristics of a given output device to optimize the time between service visits to replenish consumables and to provide increased production by utilizing both devices when possible. The strategy is to have output devices produce at a ratio to each other to maximize production capabilities when both devices have media and to ensure that a device has sufficient media to maintain system operation when one device is exhausted of media and awaiting service. Assuming two devices have the same storage capacity, a second device will produce a disproportionate amount of production compared to a first device until it reaches 2 to 1 ratio of remaining consumables with a first device. The initial ratio is achieved when the amount of consumables in the first device, minus the second device equals half of the amount of consumable material available when each device is full. Once a 2 to 1 ratio has been achieved the ratio will be maintained through alternating production. When the second device is exhausted of consumables the first device will produce all fulfilled items. When the second device is maintained (refilled) it will produce output at a disproportionate amount to the first device until a 2 to 1 ratio is regained (device 2 will now have 2 times the media of device one) The ratio is regained when the amount of consumables in the second device, minus the first device equals

- 1 half of the amount of consumable material available when an individual device is full.
- 2 This workflow continues in an alternating fashion.

**APPLICATION DATA SHEET**

Electronic Version v14

Stylesheet Version v14.0

<b>Title of Invention</b>	<b>Optimizing Output Speed and Replenishment</b>
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<b>Inventor Information:</b>  <b>Inventor 1:</b> <b>Applicant Authority Type:</b> Inventor <b>Citizenship:</b> US <b>Name prefix:</b> Mr. <b>Given Name:</b> David <b>Middle Name:</b> J. <b>Family Name:</b> Oles <b>City of Residence:</b> San Marcos <b>State of Residence:</b> TX <b>Country of Residence:</b> US <b>Address-1 of Mailing Address:</b> 801 Blanco River Ranch Boulevard <b>Address-2 of Mailing Address:</b> <b>City of Mailing Address:</b> San Marcos <b>State of Mailing Address:</b> TX <b>Postal Code of Mailing Address:</b> 78666 <b>Country of Mailing Address:</b> US <b>Phone:</b>	

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